2004 GALVESTON BAY INVASIVE SPECIES RISK ASSESSMENT
INVASIVE SPECIES SUMMARY
Created by: Environmental Institute of Houston, University of Houston-Clear Lake
and the Houston Advanced Research Center

Common Name: Round goby

Latin Name: *Neogobius melanostomus*

Category: Aquatic Animal

Place of Origin: Eurasia including Black Sea, Caspian Sea, and Sea of Azov and tributaries
http://nas.er.usgs.gov/fishes/accounts/gobiidae/ne_melan.html

Place of Introduction: "This species was introduced into the St. Clair River and vicinity on the Michigan-Ontario border where several collections were made in 1990 on both the U.S. and the Canadian side (Jude et al. 1992) (http://nas.er.usgs.gov/fishes/accounts/gobiidae/ne_melan.html)."

Date of Introduction: 1990

Life History: "There is a long spawning period during which individuals can spawn every 20 days, while they aggressively defend their nests (Jude et al. 1992; Jude 1993) (http://nas.er.usgs.gov/fishes/accounts/gobiidae/ne_melan.html)."

Each time spawning occurs, "a female can produce up to 5,000 eggs. The males die after spawning." (http://www.seagrant.wisc.edu/greatlakesfish/roundgoby.html)"

Growth/Size: 30.5 cm; 17.8 cm maximum seen in United States (Jude 1993).

Feeding Habits/Diet: "The diet of round gobies collected in the United States consists of aquatic insects, zebra mussels, and some native snails. Studies have shown a single goby can eat as many as 78 zebra mussels per day. These gobies are very pugnacious fish that feed voraciously, and, as such, they may prey on the young of other deepwater bottom dwellers such as sculpins, darters, and logperch (http://nas.er.usgs.gov/fishes/accounts/gobiidae/ne_melan.html)."

Habitat: "Although Jude (1993) expected introduced round gobies to be restricted to nearshore rocky or weedy habitats, the species has since been captured at depths as great as 21.5 m (Cavender, personal communication) (http://nas.er.usgs.gov/fishes/accounts/gobiidae/ne_melan.html)."

Attitude (aggressive, etc.): "The numbers of native fish species have declined in areas where this goby has become abundant (Crossman et al. 1992); sculpins have been particularly affected (Marsden and Jude 1995). This species has been found to prey on darters, other small fish, and lake trout eggs and fry in laboratory experiments. They also may feed on eggs and fry of sculpins, darters and logperch (Marsden and Jude 1995). Adults aggressively defend spawning sites and may occupy prime spawning areas, keeping natives out (Marsden and Jude 1995). Walleye anglers in Detroit report that at times all they can catch are gobies, which eagerly attack bait.

Their well-developed lateral line may help them outcompete natives for food in the murky Great Lakes waters. Their aggressive nature may allow individuals to dominate prime spawning sites, making these sites unavailable to natives (Marsden and Jude 1995) (http://nas.er.usgs.gov/fishes/accounts/gobiidae/ne_melan.html)."

Physical Description: "Young round gobies are solid slate gray. Older fish are blotched with black and brown and have a greenish dorsal fin with a black spot. The raised eyes on these fish are also very distinctive (Jude 1993). This goby is very similar to native sculpins but can be distinguished by the fused pectoral fins (sculpins have two separate fins) (Marsden and Jude 1995) (http://nas.er.usgs.gov/fishes/accounts/gobiidae/ne_melan.html)."

Management Recommendations / Control Strategies: include references for existing site-specific strategies

1. USGS. Great Lakes Science Center. Round Goby: An Exotic Fish in the Great Lakes.
http://www.glsc.usgs.gov/information/factsheets/roundgoby00/roundgoby00.htm.
"Summary: Scientists at the Great Lakes Science Center, in cooperation with the University of Michigan, Smith-Root, Inc. and the U.S. Army Corps of Engineers, recently finished a project evaluating the potential for using an electric barrier to slow the spread of round gobies from Lake Michigan through the Illinois Waterway System and into the Mississippi River drainage. Our scientists first worked with round gobies in the laboratory to determine the most effective electrical parameters and then participated in a small-scale field study to test the barrier in a more realistic setting. We were able to establish electrical parameters that successfully deterred passage of the majority of round gobies present. These tests provided guidance for the operation of the electrical barrier scheduled to be built soon in the Illinois Waterway System."

2. Moy, P.B. 1997. An ANS dispersal barrier for the Great Lakes and Mississippi River basins. ANSUpdate 3(4):1.

3. Moy, P.B. 1999. An invasive species dispersal barrier for the Chicago Sanitary and Ship Canal. Dreissena! 9(6):1-7.

4. Steingraeber, Mark T.; Pamella A. Thiel. 2000. The Round Goby (Neogobius melanostomus): Another Unwelcome Invader in the Mississippi River Basin. U.S. Fish and Wildlife Service, Fishery Resources Office, 555 Lester Avenue, Onalaska, WI 54650. http://midwest.fws.gov/LaCrosseFisheries/reports/nawnrc.PDF.

References (includes journals, agency/university reports, and internet links):

1. http://www.invasivespecies.gov/profiles/roundgoby.shtml. Invasive Species U. S. Gov. Species Profiles. Many links at this website.

2. http://nas.er.usgs.gov/fishes/accounts/gobiidae/ne_melan.html. USGS Nonindigenous Aquatic Species Profiles.

3. http://www.seagrant.wisc.edu/greatlakesfish/roundgoby.html. Wisconsin Sea Grant Fishes of the Great Lakes Online.

4. Miller, P. J. 1986. Gobiidae. Pages 1019-1085 *in* P. J. P. Whitehead, M.L. Bauchot., J.C. Hureau, J. Nielsen, E. Tortonese, editors. Fishes of the north-eastern Atlantic and the Mediterranean, volume III. United Nations Educational, Scientific and Cultural Organization, Paris, France.

5. Jude, D. J., R. H. Reider, and G. R. Smith. 1992. Establishment of Gobiidae in the Great Lakes Basin. Canadian Journal of Fisheries and Aquatic Science 49:416-421.

6. Jude, D. J. 1993. The alien goby in the Great Lakes Basin. Great Lakes Information Network (Online).

7. Crossman, E. J., E. Holm, R. Cholmondeley, and K. Tuininga. 1992. First record for Canada of the rudd, *Scardinius erythrophthalmus*, and notes on the introduced round goby, *Neogobius melanostomus*. Canadian Field-Naturalist 106(2):206-209.

8. Marsden, J.E., and D.J. Jude. 1995. Round gobies invade North America. Great Lakes Sea Grant Program Fact Sheet IL-IN-SG-95-10. Purdue University, Illinois-Indiana Sea Grant College Program Office, West Lafayette, IN. 2 pp.

Available Mapping Information:

1. USGS Nonindigenous Aquatic Species Profiles. http://nas.er.usgs.gov/fishes/accounts/gobiidae/ne_melan.html